

Abstract Submitted  
for the NEF05 Meeting of  
The American Physical Society

**Lateral Organization in Biomembranes from Simple Non-Equilibrium Models with Nearest Neighbor Interactions** ANDREW P. PARADIS, SUSAN R. MCKAY, SAMUEL T. HESS, Department of Physics and Astronomy, University of Maine, Orono, Maine 04469-5709 — Biological function relies strongly on the regulated segregation of biomembrane constituents, yet understanding of the mechanisms for such organization remains limited. This study focuses on the distribution of saturated and unsaturated lipids interacting and moving on a two-dimensional triangular lattice, simulated using a Metropolis algorithm. Interaction energies between the two species are adjustable within the model, as are the rate and size of simulated endo- and exocytosis events. These events keep the system substantially out of equilibrium and yield a striped phase comparable to those seen experimentally. [1] This phase is robust, occurring over a wide range of interactions. By adding additional species such as cholesterol, this simple model shows promise for quantitatively predicting specific details of biomembrane phase behavior.

[1] Baumgart T, Hess ST, and Webb WW. *Nature*. 2003 Oct 23;425(6960):821-4.

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Date submitted: 29 Sep 2005

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